

# *EdgeFLEX 600*

## *HARDWARE INSTALLATION MANUAL*

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# PREFACE

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## Compliance

### ***Safety of Information Technology Equipment***

EdgeFLEX™ 600 is safety certified by an independent laboratory and is compliant with the following safety standards:

- UL60950, 1st Edition / CSA C22.2 No. 60950-1-03
- EN60950-1

### ***FCC Requirements, Part 15***

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the Federal Communications Rules. These limits are designed to provide reasonable protection against harmful interference when equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

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**CAUTION!** MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT UNDER FCC RULES.

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**NOTE:** See *Chapter 2, EdgeFLEX 600 Installation* for installation instructions to meet FCC Part 15 requirements.

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### ***Industry Canada ICES-003***

#### **English**

This class A digital apparatus complies with Canadian ICES-003.

#### **French**

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

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**NOTE:** See *Chapter 2, EdgeFLEX 600 Installation* for installation instructions to meet Canadian ICES-003 requirements.

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## ***Europe EN55022 and AS/NZS CISPR22***

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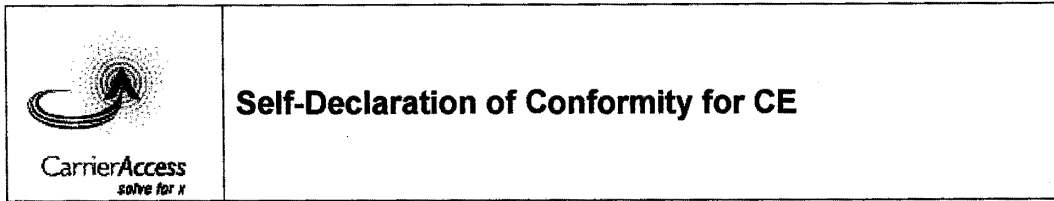
**WARNING!** THIS IS A CLASS A PRODUCT. IN A DOMESTIC ENVIRONMENT THIS PRODUCT MAY CAUSE RADIO INTERFERENCE IN WHICH THE USER MAY BE REQUIRED TO TAKE ADEQUATE MEASURES.

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### ***NEBS Level 3 Requirements***

The chassis, power supply and controller are NEBS Level 3 Certified. For other service cards, refer to their chapter in this manual, to determine NEBS compliance.

Grounding per NEBS is covered in the Installation chapter of this manual, and is required for NEBS Level 3 compliance.



**Self-Declaration of Conformity for CE**

We,

Supplier: **Carrier Access**  
**5395 Pearl Parkway**  
**Boulder, Colorado 80301**  
**USA**

Declare under our sole responsibility that the product,

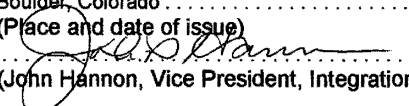
**EdgeFLEX 600**

To which this declaration relates, conforms with the following standards or normative documents:

<u>Document No.</u>	<u>Title</u>	<u>Edition/Date of Issue</u>
EN 60950	Safety of Information Technology Equipment	2001
EN 55022	Information Technology Equipment – Radio Disturbance Characteristics – Limits and Methods of Measurements	1998
EN 55024	Information Technology Equipment - Immunity Characteristics – Limits and Methods of Measurement	1998
EN 61000-4-2	Electromagnetic compatibility (EMC) Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test	1995 and Amend 1 1998
EN 61000-4-3	Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques; Radiated, radio frequency, electromagnetic field immunity test.	1995 and Amend 1 1998
EN 61000-4-4	Electromagnetic compatibility (EMC) – Part 4-4; Testing and measurement techniques – Electrical fast transient/burst immunity test	1995
EN 61000-4-5	Electromagnetic compatibility (EMC) – Part 4-5; Testing and measurement techniques; Surge immunity test	1995
EN 61000-4-6	Electromagnetic compatibility (EMC) – Part 4-6; Testing and measurement techniques; Immunity to conducted disturbances, induced by radio-frequency fields	1996

The product is in accordance with the provisions of the following directives:

<u>Directive No.</u>	<u>Title</u>
1999/5/ec .....	R&TTE Directive
73/23/ECC .....	Low Voltage Directive
89/336/ECC ....	EMC Directive

Boulder, Colorado ..... 20 July 2007 .....  
(Place and date of issue)  
 ..... 7-24-07 .....  
(John Hannon, Vice President, Integration) (Signature, Date)

## **Safety Notices**

### **Class 1 Laser Product Safety Warning**

The EdgeFLEX 600 is a Class 1 Laser Product. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice 50, dated July 26, 2001, as well as European requirements EN 60825-1 and EN 60825-2. Operational wavelengths are in the range 830-1620 nm.



This symbol on the front panel indicates the presence of invisible laser light. Under normal operation, Class 1 lasers are considered eye-safe and not harmful. Optical interfaces do not need to be shut down when connecting or disconnecting optical fibre. However, care should always be exercised to minimize exposure when working with lasers. Avoid looking into the transceiver or an unconnected fibre with the naked eye or through the use of viewing optics.

When an interface is not connected with a fibre, replace the dust plug to help protect the transceiver optics and reduce the chance of accidental exposure to laser light.

Only Small Form-Factor Pluggable (SFP) optical transceivers approved for use by Carrier Access should be used within this system. Use of non-approved transceiver devices may result in an increased risk of exposure to invisible laser light or an inoperative optical port.

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**CAUTION!** USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

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**CAUTION!** THE USE OF OPTICAL INSTRUMENTS WITH THIS PRODUCT WILL INCREASE EYE HAZARD.

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## **DC Power Supply Warnings**

The DC power supply must be installed in a restricted area, such as an equipment closet or room, in compliance with Articles 110-16, 110-17, and 110-18 of the National Electric Code, ANSI/NFPA 70. The DC power source must be isolated from the AC power source and must have a proper ground.

The grounded conductor of the DC supply circuit can be connected to the frame grounding conductor of the EdgeFLEX 600. In this case, the following conditions apply:

- The EdgeFLEX 600 must be connected to the DC power supply grounded conductor or bonding jumper from the grounding terminal bar or bus to which the DC power supply grounded conductor is connected.
- The EdgeFLEX 600 must be located in the same area as other equipment having a connection between the grounded conductor of the same DC supply circuit and the grounding conductor, and also the point of grounding of the DC system. The DC system must not be grounded elsewhere.
- The DC power supply must be located on the same premises as the EdgeFLEX 600.
- You must not switch or disconnect devices in the grounded conductor between the DC power supply and the point of connection of the grounding electrode conductor.
- A readily accessible disconnect device may be provided in the fixed wiring for a DC power supply. The device must be rated for the voltage and current specified.

For safety purposes, the DC power supply requires connection to a grounded outlet. To prevent possible injury from voltages on the telecommunications network, disconnect all telecommunications network lines before disconnecting the DC power supply from the grounded outlet.

## **Service and Maintenance - End User**

All service to the EdgeFLEX 600 shall be undertaken **ONLY** by qualified service personnel. There are no user serviceable parts inside the unit.

Do **NOT** plug in, turn on or attempt to operate an obviously damaged unit.

Ensure the supply voltage for the product is within the range indicated on the identification label.



During any service and maintenance procedure, if an optical interface must be disconnected insert the dust plug shipped with the unit into the transceiver interface to minimize exposure to invisible laser light and to protect the optics.

### **AC Power Supply**

AC Power Supply Fuse Rating and Type: 250V, 2A time lag fuse (i.e., Littelfuse 0213 002 or equivalent)

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**CAUTION!** FOR CONTINUED PROTECTION AGAINST THE RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE AND RATING OF FUSE.

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**CAUTION!** POUR NE PAS COMPROMETTRE LA PROTECTION CONTRE LES RISQUES D'INCENDIE, REMPLACER PAR UN FUSIBLE DE MEME TYPE ET DE MEMES CARACTERISTIQUES NOMINALES.

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If fuse replacement is required, ensure that the power switch on the unit is turned off and the power cord is removed from the AC source prior to replacement.

### **DC Power Supply**

DC powered devices use redundant power supplies, each with its own power cord.

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**CAUTION!** THIS UNIT HAS MORE THAN ONE POWER SUPPLY CORD. DISCONNECT THE 2 POWER SUPPLY CORDS BEFORE SERVICING TO AVOID ELECTRIC SHOCK.

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**CAUTION!** CET APPAREIL COMPORTE PLUS D'UN CORDON D'ALIMENTATION. AFIN DE PRÉVENIR LES CHOCS ÉLECTRIQUES, DEBRANCHER LES 2 CORDONS D'ALIMENTATION AVANT DE FAIRE LE DÉPANNAGE.

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## **Safety Information**

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**CAUTION!** ALWAYS USE CAUTION WHEN INSTALLING TELEPHONE LINES. READ THE CAUTIONS BELOW FOR DETAILS ON SAFETY GUIDELINES TO PREVENT INJURY.

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- **Never touch uninsulated telephone wires and terminals** unless the telephone line has been disconnected at the Network Interface (NI) as voltage potentials as high as 300 VAC may be present across the transmit and receive pairs
- **Only use No. 26 AWG or larger** telecommunication line cord, to reduce the risk of fire
- Never install telephone wiring during a lightning storm
- **Never install telephone jacks in wet locations** unless the jack is specifically designed for wet locations
- Refer to the installation section of this manual for a safe and proper installation procedure. All wiring external to this equipment should follow the current provision of the National Electrical Code

## **Notices**

This manual contains important information and warnings that must be followed to ensure safe operation of the equipment.

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**DANGER!** A *DANGER* NOTICE INDICATES THE PRESENCE OF A HAZARD THAT CAN OR WILL CAUSE DEATH OR SEVERE PERSONAL INJURY IF THE HAZARD IS NOT AVOIDED.

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**CAUTION!** A *CAUTION* NOTICE INDICATES THE POSSIBILITY OF INTERRUPTING NETWORK SERVICE IF THE HAZARD IS NOT AVOIDED.

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**WARNING!** A *WARNING* NOTICE INDICATES THE POSSIBILITY OF EQUIPMENT DAMAGE IF THE HAZARD IS NOT AVOIDED.

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**NOTE:** A *Note* indicates information to help you understand how to perform a procedure or how the system works. Notes should be read before performing the required action.

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## ***Preface***

### *Electrostatic Discharge (ESD) Precautions*

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## ***Electrostatic Discharge (ESD) Precautions***

ESD can damage processors, circuit cards, and other electronic components. Always observe the following precautions before installing a system component.

1. Do not remove a component from its protective packaging until ready to install.
2. Wear a wrist grounding strap and attach it to a metal part of the system unit before handling components. If a wrist strap is not available, maintain contact with the system unit throughout any procedure requiring ESD protection.

---

**WARNING! INTEGRATED CIRCUITS (ICs) ARE EXTREMELY SUSCEPTIBLE TO ELECTROSTATIC DISCHARGE. UNLESS YOU ARE A QUALIFIED SERVICE TECHNICIAN WHO USES TOOLS AND TECHNIQUES THAT CONFORM TO ACCEPTED INDUSTRY PRACTICES, DO NOT HANDLE ICs.**

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The ESD warning label appears on packages and storage bags that contain static-sensitive products and components.



## **Warranty**

Carrier Access warrants to Distributor that Products are free from substantial defect in material and workmanship under normal use given proper installation and maintenance for period of five (5) years from the date of shipment by Carrier Access. This warranty shall not apply to Products that have been either resold or transferred from Distributor's customer to any other party. Any such transfer shall void the above warranty.

Distributor will promptly notify Carrier Access of any defect in the Product. Carrier Access or its agent will have the right to inspect the Product or workmanship on Distributor's premises or Distributor's customer's premises. Carrier Access has the option to: (a) repair, replace, or service at its factory or on the premises the Product or workmanship found to be defective; or (b) credit BUYER for the PRODUCT in accordance with Carrier Access's depreciation policy. Refurbished material may be used to repair or replace the Product. Products returned to Carrier Access for repair, replacement, or service will be shipped prepaid by Distributor.

### **Limitation of Warranty & Limitation of Remedies**

Correction of defects by repair, replacement, or service will be at Carrier Access's option and constitute fulfillment of all obligations to Distributor for breach of warranty.

Carrier Access assumes no warranty liability with respect to defects in the Product caused by:

- a. modification, repair, installation, operation, or maintenance of the Product by anyone other than Carrier Access or its agent, except as described in Carrier Access's documentation; or
- b. the negligent or other improper use of the Product; or
- c. handling or transportation after title of the Product passes to Distributor.

Other manufacturer's equipment purchased by Carrier Access and resold to Distributor will be limited to that manufacturer's warranty. Carrier Access assumes no warranty liability for other manufacturer's equipment furnished by Distributor.

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No agent, Distributor, or representative is authorized to make any warranties on behalf of Carrier Access or to assume for Carrier Access any other liability in connection with any of Carrier Access's Products, software, or services.

## **Warranty Product Returns**

Before returning any equipment to Carrier Access Corporation, first contact the distributor or dealer from which you purchased the product.

A Return Material Authorization (RMA) number is required for all equipment returned to Carrier Access Corporation. Call Carrier Access Corporation Customer Support at (800) 786-9929 or (303) 442-5455 for RMA number, repair/warranty information and shipping instructions. Be prepared to provide the following information:

- Carrier Access Corporation serial number(s) from the system chassis or circuit card(s)
- Name of distributor or dealer from which you purchased the product
- Description of defect

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# CHAPTER 1

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## *EdgeFLEX 600 Overview*

### **In this Chapter**

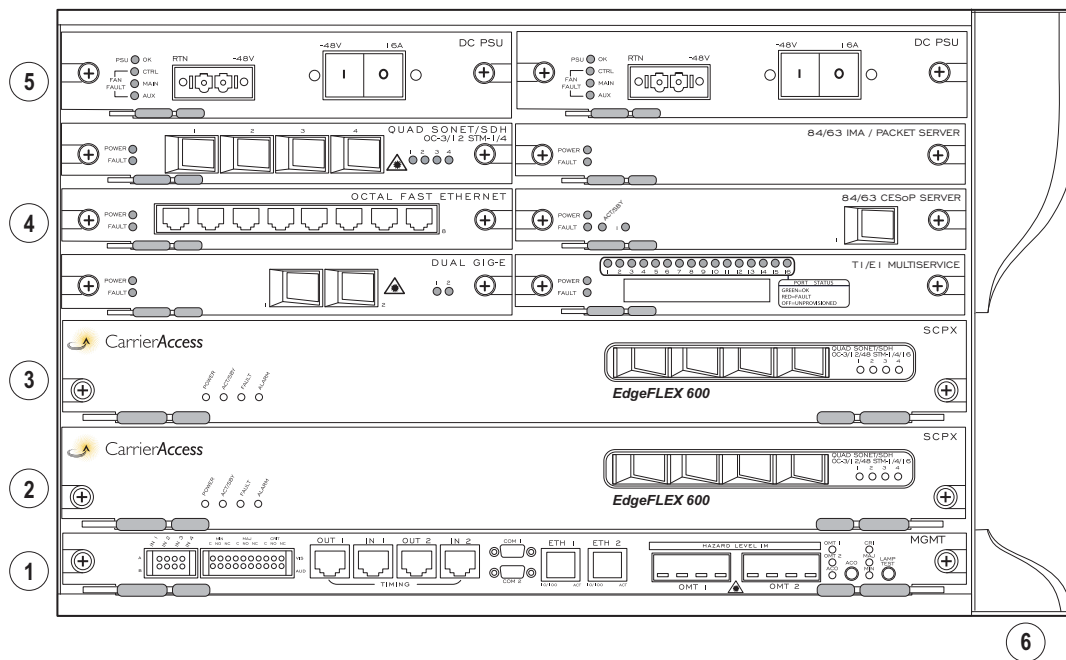
- Hardware Overview
- Site Planning
- Technical Specifications
- Related Documentation

## Hardware Overview

The EdgeFLEX 600 is a carrier-class multiservice telecommunications switch. The EdgeFLEX 600 complies to the building equipment standards published by both Telcordia (NEBS) and the European Telecommunications Standards Institute (ETSI). It is 10.40 inches (6 rack-units, 264.16 mm) in height, 17.26 inches (438.4 mm) wide, and 11.81 inches (300 mm) deep with cables, and may be installed in a ETSI-compliant 600mm or 300mm rack or NEBS-style 19- or 23-inch rack.

### EdgeFLEX 600 Front View

The following illustration shows the front view of the EdgeFLEX 600 equipped with typical interfaces. The paragraphs following the illustration describe the corresponding features indicated in the illustration.



- ① Management (MGMT) card provides:
  - alarm relay contacts (inputs and outputs)
  - system timing inputs and outputs
  - management serial ports
  - out-of-band management Ethernet ports
  - GBIC slots for passive CWDM Mux/Demux or Optical Add/Drop Multiplexor modules
  - System Lamp Test button and Alarm Cutoff switch
- ② SCPX - System Controller and Packet Fabric; also provides trunk interfaces (either Gigabit Ethernet or SONET/SDH)
- ③ SCPX 2 - slot for second System Controller and Packet Fabric, with trunk interfaces; equipping the EdgeFLEX 600 with two SCPX cards provides for redundant operation.
- ④ PODs - hot-swappable interface modules, up to six per EdgeFLEX 600 chassis
- ⑤ Dual redundant hot-swappable DC power supply modules
- ⑥ Dual redundant fan trays and an air filter (behind decorative bezel) EdgeFLEX 600



## **Site Planning**

### **Power Requirements**

The EdgeFLEX 600 is available with redundant DC power input connections. The power connectors are pluggable terminal blocks rated at 41 amps, -40 to -72 VDC, -48 VDC nominal. The maximum power consumption for an EdgeFLEX 600 device is approximately 675 watts, drawing maximum 16 amps at 40 volts. Maximum current draw (worst case) is 16 amps. Typical power consumption for an EdgeFLEX 600 (assuming two SCPX cards, plus five of the six POD positions populated) is approximately 345 watts.

### **Cooling Requirements**

The EdgeFLEX 600 chassis is typically installed in a rack with multiple other devices. To allow for adequate heat dissipation, the operating environment must provide proper airflow to allow each chassis to operate at a temperature range of 32° to +122°F (0° to +50°C).

## **Technical Specifications**

### **Chassis Specifications**

The following table lists the chassis specifications for the EdgeFLEX 600 chassis.

<b>Specification</b>	<b>Value</b>
Height	10.4 inches (264.16 mm, 6 rack units)
Width	17.26 inches (438.4 mm)
Depth	11.8 inches (300 mm). Note: dimensions include cable requirements.
Weight	Approximately 42 lbs. (19 kg), depending on configuration
Mounting	19-inch telco rack, 300mm or 600mm ETSI rack (standard) 23-inch telco rack (optional)

### **Electrical Specifications**

The following table lists the electrical specifications for the EdgeFLEX 600.

<b>Specification</b>	<b>Value</b>
Input voltage (DC)	-40 to -72 VDC
Input current	16 amps maximum
DC Power consumption	675 watts maximum, 345 watts typical

### Environmental Specifications

The following table lists the environmental specifications for the EdgeFLEX 600 chassis.

Attribute	Measurement
Operating temperature	32° to 122 °F (0° to 50 °C) stable
Storage temperature	-40° to 158 °F (-40° to 70 °C)
Operating altitude	0 to 14,000 ft. (0 to 4000 m)
Operating humidity	5% to 85% maximum relative humidity, noncondensing

### Compliance Specifications

The following table lists the compliance specifications for the EdgeFLEX 600 chassis.

Attribute	Measurement
Safety	CSA 60950-1-03/UL 60950-1 EN 60950-1
EMC	FCC Part 15-Class A ICES 003 Class A VCCI Class A EN 55022 Class A EN 300386 EN 55024 GR-1089-CORE
Optical	CDRH Class 1 EN 60825-1, 60825-2

### Related Documentation

For more information about Carrier Access products, refer to the following documents:

- EdgeFLEX 100/600 System Overview
- EdgeFLEX 100 and EdgeFLEX 600 Command Line Interface User Manual
- EdgeFLEX 600 Release Notes

# CHAPTER 2

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## ***EdgeFLEX 600 Installation***

### **In this Chapter**

- Preparing for Installation
- Chassis Components
- Installing the EdgeFLEX 600 Chassis in a Rack
- Installing the Decorative Bezel
- Connecting Power
- Connecting System Cables
- Connecting Network Cables
- Powering Up and Checking LEDs
- Routing Cables

## Preparing for Installation

### Required Tools to Unpack and Install the Chassis

You may need the following tools to unpack and install the EdgeFLEX 600 chassis in a rack:

- Cable cutters
- #2 screwdriver (Phillips or flathead)
- ESD wrist strap

### Unpacking the EdgeFLEX 600

The EdgeFLEX 600 is shipped in a foam enclosure within a sturdy cardboard container. Carefully slice the strapping tape on the top of the box. Avoid penetrating too deeply into the interior of the shipping container so as not to damage the contents.

### Checking the Contents

Before beginning installation, unpack the shipping container and confirm that you received all of the necessary components.

1. Carefully inspect all items for shipping damage. If you notice any damage, do not install the device. Call Carrier Access Corporation Technical Support for instructions.
2. Ensure that the content includes:
  - One EdgeFLEX 600 chassis, including all orderable card options
  - Accessory Kit, containing
    - Two 19-inch flanges for rack mounting (23-inch flanges must be ordered as an optional accessory)
    - Panduit grounding lug with lock nuts
    - Two power connector blocks
    - Two alarm terminal blocks
    - Front cable management flange
    - Decorative bezel to cover fan trays and air filter
    - Seventeen 6-32 1/4-inch Phillips flathead screws (attach mounting flange to the chassis)
    - Eight 10-32 1/2-inch Phillips round-head screws (used to rack-mount the chassis)
    - EdgeFLEX 600 Release Notes (hard copy)
    - Carrier Access Corporation Software CD
    - Carrier Access Documentation CD containing the following:
      - EdgeFLEX 600 Release Notes
      - EdgeFLEX 600 Hardware Installation Guide
      - EdgeFLEX 100 and EdgeFLEX 600 Command Line Interface User Manual
    - One management serial cable (9 pin female mini D-Sub connectors)
    - Anti-static wrist strap
  - 3. Confirm that the items in the shipping container match those on the packing list affixed to the shipping container.

## **Chassis Components**

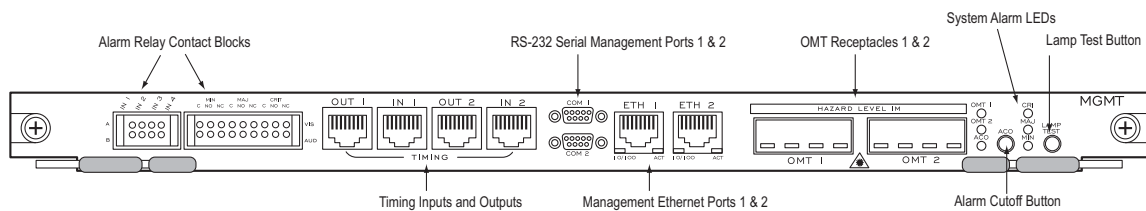
### **Fan Tray, System Interfaces, and Power Supply Units**

The following components are standard features of the EdgeFLEX 600 chassis:

- System interfaces (Ethernet, RS-232, etc.)
- Air filter
- Fan tray assembly (located in the front right of chassis)
- Cable management flange at the left front
- Bezel at the right front of the chassis
- DC power input connectors (located on the modular Power Supply Unit at the top of the chassis)

### **Front Panel LEDs and System Interfaces Locations**

The following illustration shows the location of the alarm/status LEDs on the Management card, and the system management interfaces, timing interfaces, and alarm relay contacts.



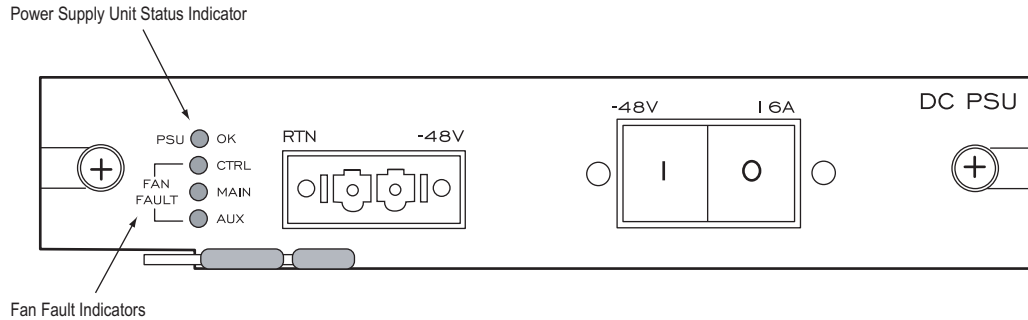
### **Power Supply Unit LED Locations**

The following illustration shows the location of the alarm/status LEDs on the EdgeFLEX 600 DC Power Supply Units. The PSU OK LED indicates the status of the PSU; green indicates that the PSU is functioning properly, red indicates that the PSU is experiencing a fault or (in the case of a redundant PSU with the system powered by the other PSU) that DC power has not been connected to the PSU.

## EdgeFLEX 600 Installation

### Installing the EdgeFLEX 600 Chassis in a Rack

The Fan Fault LEDs indicate the status of the fan trays installed in the EdgeFLEX 600. Each PSU has a Fan Controller built in and the two PSUs share control over the two Fan Tray Units. The CTRL LED indicates that the Fan Controller circuit on the PSU is operating correctly; the MAIN and AUX LEDs indicate the status of each Fan Tray Unit.



## Installing the EdgeFLEX 600 Chassis in a Rack

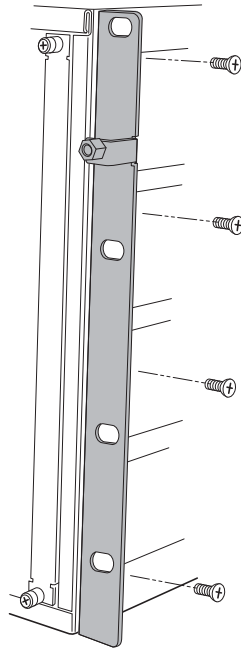
### Installing Flanges on the Chassis

Determine whether you are installing the EdgeFLEX 600 chassis into a ETSI-compliant or 19-inch rack, or a 23-inch rack, and ensure that you have the appropriate flanges. Flanges for a 19-inch rack or ETSI-compliant rack are approximately 0.5 inches wide and are included in the accessory kit. Flanges for a 23-inch rack are approximately 4.5 inches wide, and are a separately ordered option. Four 6-32 1/4-inch flathead screws are used to connect each flange to the chassis.

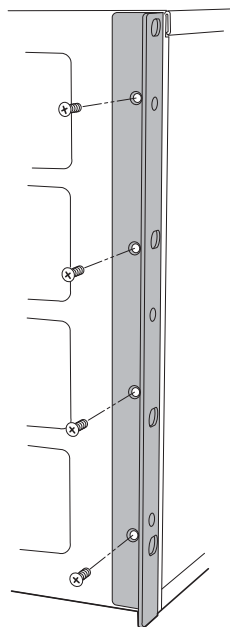
To install 19 or 23 inch flanges on the EdgeFLEX 600 chassis, perform the following steps:

1. Position the right-hand mounting flange so that the holes in the flange align with the corresponding holes in the chassis, and that the flange face is in front, as shown in step 2.

2. Insert each of the four 6-32 1/4-inch flathead screws through the flange holes and into the chassis.



3. Use a #2 screwdriver to tighten the screws.
4. Position the left-hand mounting flange so that the holes in the flange align with the corresponding holes in the chassis, and that the flange face is in front, as shown in step 2.
5. Insert each of the four 6-32 1/4-inch flathead screws through the flange holes and into the chassis.



## EdgeFLEX 600 Installation

### Installing the EdgeFLEX 600 Chassis in a Rack

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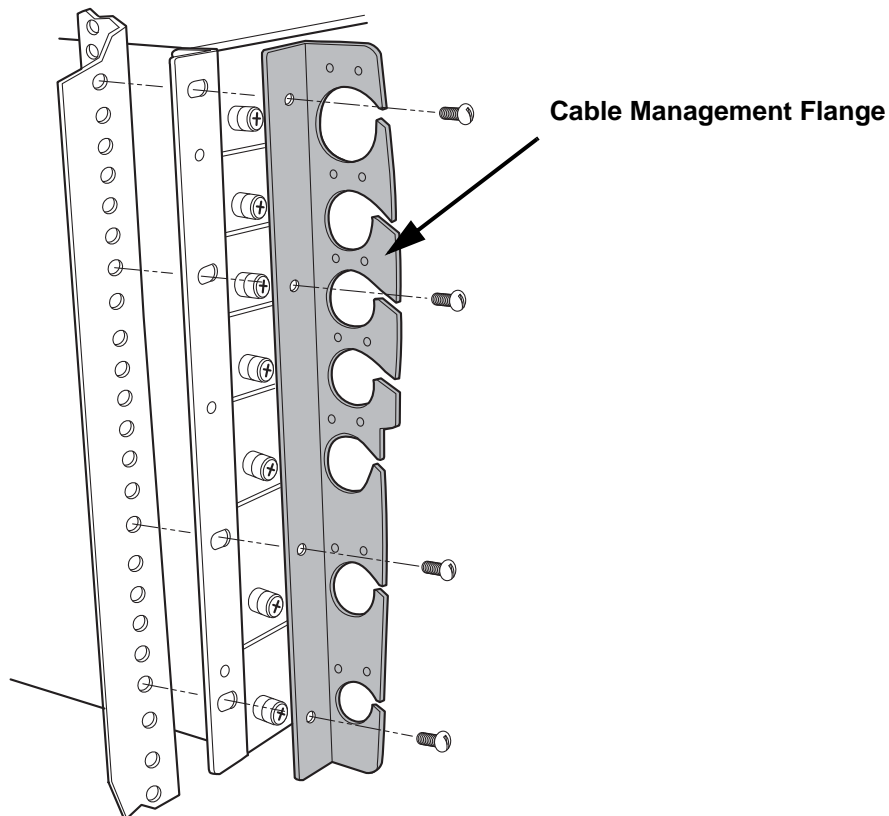
#### Rack Installation

To install the EdgeFLEX 600 chassis in a rack, you need the following:

- Two people able to lift at least 45 pounds
- Eight 10-32 1/2-inch round-head screws to secure the chassis to the rack (included in the shipment).
- #2 screwdriver (flat or Phillips)

To install the EdgeFLEX 600 chassis into a rack, perform the following steps:

1. Ensure that you have enough space allocated in the rack to install the EdgeFLEX 600 chassis.
2. Lift the chassis to the desired location in the rack.
3. Align the holes in the flanges with the holes in the rack.
4. Optionally, align the cable management flange as shown in the following illustration.

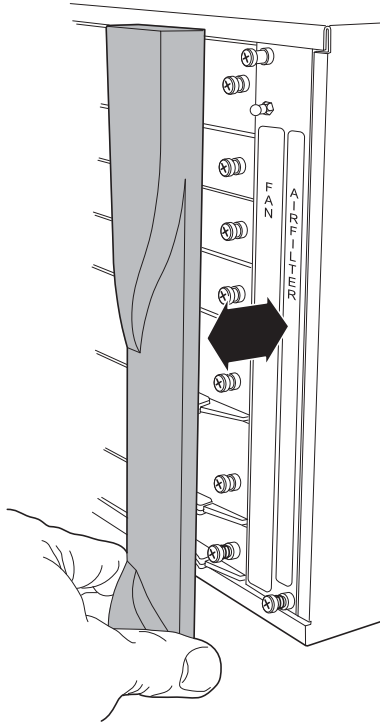


5. Insert a mounting screw into the topmost **left** and **right** flange holes and tighten the screws using the #2 screwdriver.
6. Insert the mounting screws in the remaining screw holes on the left and right sides of the chassis.



## Installing the Decorative Bezel

A decorative bezel is included in the Accessory Kit to cover the fan tray and air filter. Snap the bezel onto the ball stud as shown in the following illustration.



## Connecting Power

---

**DANGER!** BEFORE INSERTING OR EXTRACTING A EDGEFLEX 600 DC POWER SUPPLY UNIT, ENSURE THAT THE PSU'S CIRCUIT BREAKER SWITCH IS IN THE OFF POSITION, AND THAT THE DC POWER CONNECTOR HAS BEEN UNPLUGGED.

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### Requirements for DC Power Connections

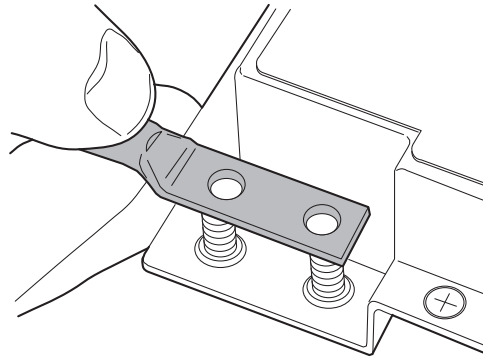
The EdgeFLEX 600 DC model can be powered from a DC supply operating between -40 and -72 VDC. The power connector is located on the front of the Power Supply Module(s), which are located in the top two slots of the EdgeFLEX 600 chassis. The PSU modules are redundant and hot-swappable.

- Use a separate circuit breaker to power each power supply. This will allow one power supply to keep the EdgeFLEX 600 operating while the other power supply is powered down for maintenance.
- Use 7 to 8 gauge wire for up to 50 foot run to power the device.
- Use a circuit breaker rated for 25 Amps for the power leads.

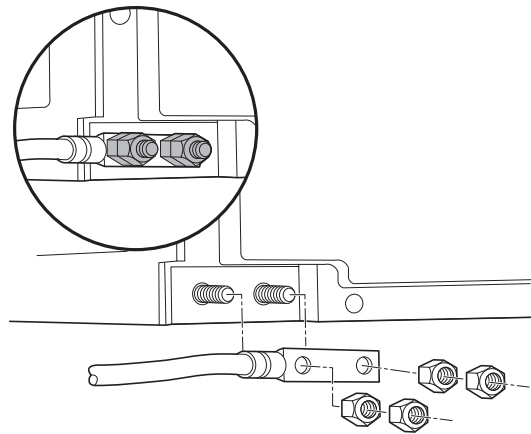
### Connecting Chassis to Ground

To connect the EdgeFLEX 600 chassis to ground, perform the following steps:

1. Slide the attached Panduit ground lug onto an appropriate ground wire (8 AWG), and crimp securely.
2. Place the ground lug over the two posts in the lower left corner of the rear of the chassis as shown below.



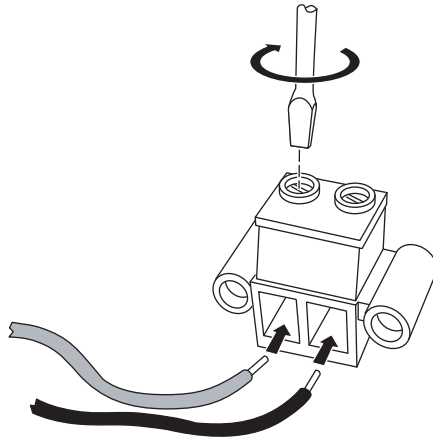
3. Fasten the two locking nuts securely onto each post.



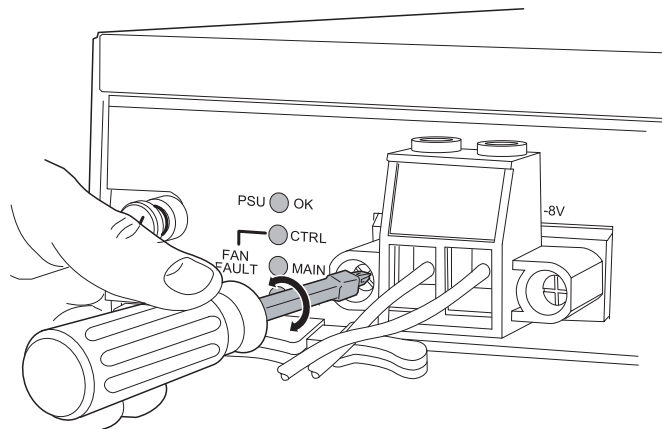
## Wiring and Connecting DC Power

To connect power to the EdgeFLEX 600 chassis, perform the following steps:

1. Ensure that the DC circuit breaker on the front of each PSU is **off**.
2. Ensure that the local DC power source is **off**. Using 8 AWG wire, wire the power supply connector block as shown below. Insert the DC RTN wire into the left-hand terminal position, and the DC supply wire into the right-hand terminal position. Tighten each terminal retaining screw using a flathead screwdriver.

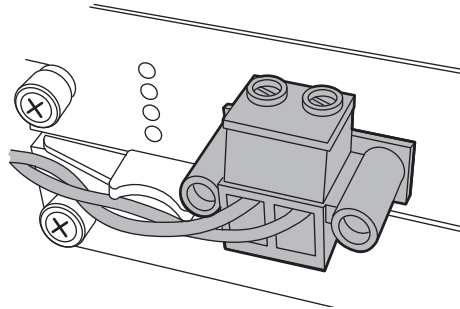


3. Plug the power connector block into the receptacle on the front of the PSU and use a #2 Phillips screwdriver to secure the connector to the PSU.



4. Engage the local DC power source.

5. When the connector block has been secured as shown below, the circuit breaker switch may be switched to the ON position to power the EdgeFLEX 600.



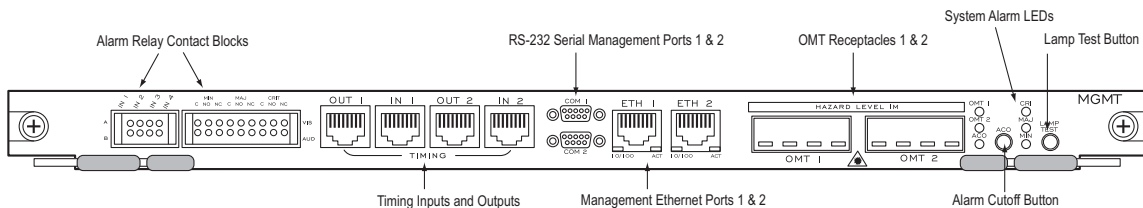
## Connecting System Cables

### System Management Connections

The front panel of the EdgeFLEX 600 provides all the connections for the system cables. For pinouts of system management connectors, see *Appendix A, "Connector Pin Assignments"*.

### System Management Connectors

The Management card (MGMT) provides all system management connectors. The following illustration shows the location of the system management connectors on the MGMT card.



### Connecting the Management Cable(s)

To connect an Ethernet cable to the management connector on the EdgeFLEX 600, perform the following steps:

1. Locate the 10/100 Ethernet cable to use as the LAN connection for network management.
2. Insert the LAN cable RJ-45 connector into the port labeled ETH 1.

**NOTE:** If you are configuring a redundant LAN connection, repeat steps 1 and 2 and connect the second LAN cable to the port labeled ETH 2. Note: use of both ETH 1 and ETH 2 simultaneously is not currently supported.)

## **Connecting the Local Console Cable**

To connect a local console cable (included in the Accessory Kit) to the RS-232 serial connector on the EdgeFLEX 600, perform the following steps:

1. Locate the local console cable to use as the local connection for network management.
2. Connect the cable to the mini RS-232 port labeled COM 1 on the front of the chassis.

## **Connecting the Timing Input Cable**

The EdgeFLEX 600 provides two timing inputs, supporting RJ-48C form-factor connectors. To connect a cable to the timing connector on the EdgeFLEX 600, perform the following steps:

1. Locate the cable from the external timing source.
2. Insert the cable's RJ-48C connector into the port labeled TIMING IN 1 on the front of the EdgeFLEX 600.
3. (optional) If a secondary timing source is available, connect it to the port labeled TIMING IN 2 on the front of the EdgeFLEX 600.

## **Connecting the Timing Output Cable**

The EdgeFLEX 600 provides two timing outputs, OUT 1 and OUT 2 adjacent to the timing inputs. The OUT ports may be used to pass the timing signal received by the EdgeFLEX 600 to another device.

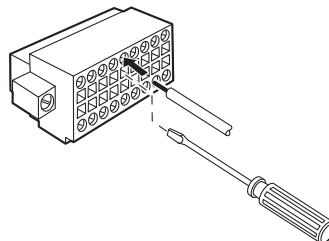
The OUT ports provide a pass through of the timing signal when the EdgeFLEX 600 is powered off. When the EdgeFLEX 600 is powered, the timing OUT 1 port is synchronized to the timing signal received on timing port IN 1. OUT 2 is connected to IN 2 in the same manner.

## **Connecting the Alarm Contacts**

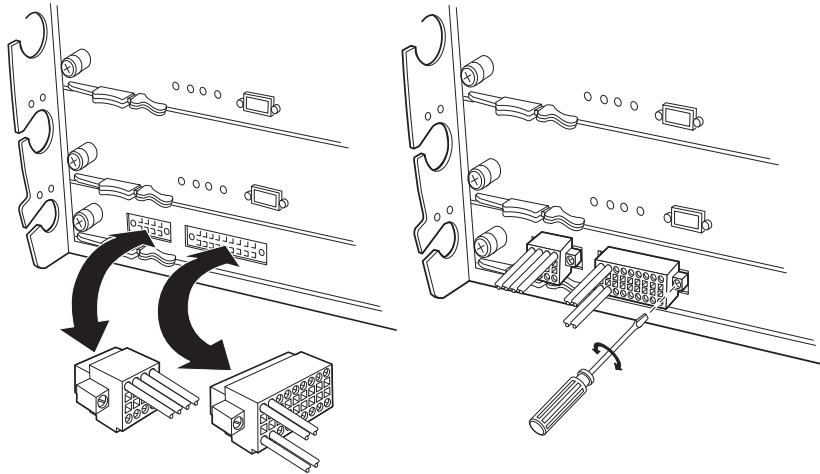
The EdgeFLEX 600 is equipped with four voltage sense inputs (range 5 to 75Vdc) for detecting external circuit closures, and contact outputs (NO/C/NC) for Critical, Major, Minor, Audible and Visible alarms. Refer to Appendix A for the connector pinouts, and the Management card label for contact location. To connect the alarm contact wiring to the relay connectors, perform the following steps:

1. Remove the alarm terminal blocks from the EdgeFLEX 600 accessory kit.
2. The round holes in the top and bottom rows are the wire insertion points. These holes have a spring-loaded retaining mechanism. To release the retaining mechanism, carefully insert a small probe (such as a small screwdriver) into the square hole directly above or below the desired wire location, then insert the wire into the corresponding round hole. Remove the probe to re-engage the retaining mechanism and lock the wire in place.

Insert the wires from the contact closures into the appropriate locations on the terminal blocks in this fashion until the connections to each block have been made as desired.



3. Re-insert the terminal blocks into the receptacles on the chassis, and fasten the two retaining screws on each terminal block.



## Connecting Network Cables

### Selecting the Appropriate Network Cables

The EdgeFLEX 600 is capable of providing a variety of different interface types to connect to the network. In general, the ports on the SCPX cards are regarded as high-speed “trunk” or network-side ports, and the ports on the linecards in the upper slot positions are regarded as “tributary” or customer-side ports, though no such distinctions between interfaces are made in the management system. The EdgeFLEX 600 can accommodate the following network interfaces:

Interface Type	Connector Type	Cable Type
DS1/E1	High-density connector	Carrier Access custom cable to breakout panel providing RJ-48 interfaces
10/100 Ethernet	RJ-45	100-ohm Category 5 UTP
Gigabit Ethernet	LC duplex	Multi-mode 62.5/125 micron fiber optic. Note: ETSI compliant cabinets may require BTW-style (31.5mm maximum depth) low-profile strain relief housing on fiber optic cables, in order to meet the 300mm depth requirements.
SONET/SDH OC-3/STM-1, OC-12/STM-4, or OC-48/STM-16	LC duplex	Single-mode 9/125 micron fiber optic, nondispersion shifted. Note: ETSI compliant cabinets may require BTW-style (31.5mm maximum depth) low-profile strain relief housing on fiber optic cables, in order to meet the 300mm depth requirements.

## Connecting to 10/100 Ethernet Interfaces

To connect 10/100 Ethernet network cables to the EdgeFLEX 600, perform the following steps:

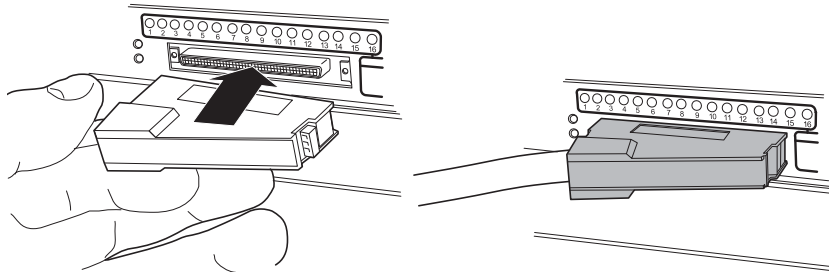
1. At the front of the chassis, locate the 10/100 Ethernet cable(s) to install.
2. Insert the RJ-45 cable connector into the appropriate 10/100 Ethernet interface connector on an Ethernet card.

## Connecting to DS1/E1 Interfaces

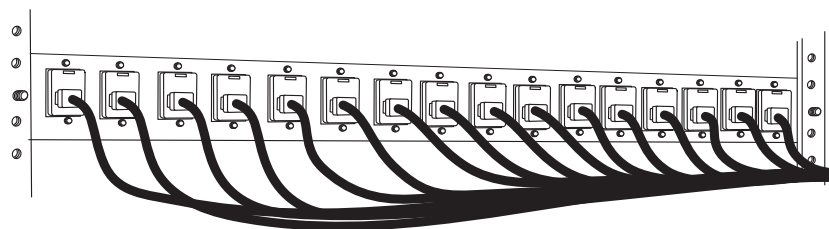
The EdgeFLEX 600 DS1/E1 interface cards use a special high-density connector and octopus cable connect to a sixteen port breakout-panel that provides standard RJ-style physical interfaces.

To connect the DS1/E1 POD to the DS1/E1 breakout panel, perform the following steps:

1. At the front of the chassis, locate the high-density connector on the DS1/E1 POD to be connected.
2. Insert the high-density plug on the octopus cable into the high-density connector on the DS1/E1 card as shown below. The connector will snap into place if seated correctly.



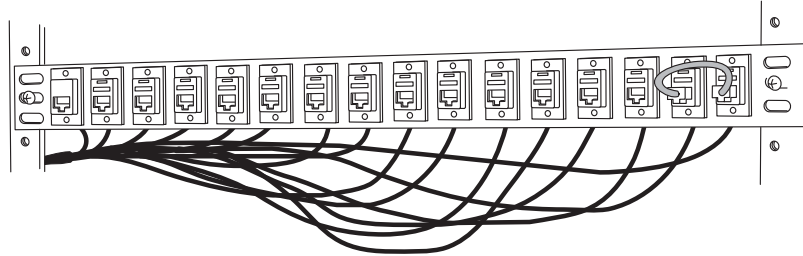
3. Connect the sixteen DS1/E1 connectors on the octopus cable to the sixteen DS1/E1 RJ-48 connectors into the back of the DS1/E1 breakout panel, as shown below. Each connector on the breakout cable is tagged with its port number; be sure to plug the correct connector into each receptacle on the breakout panel.



## EdgeFLEX 600 Installation

### Connecting Network Cables

4. Finally, connect the individual DS1/E1 lines to the physical interfaces provided on the breakout panel. (In the example below, ports 15 and 16 are connected by a small loopback connector for testing purposes.)



### Connecting to Optical Interfaces

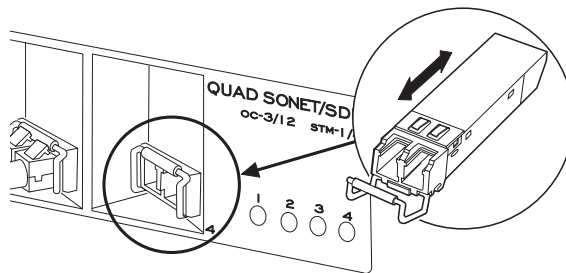
**DANGER!** DO NOT LOOK DIRECTLY INTO THE END OF A FIBER-OPTIC CABLE. FIBER-OPTIC CABLES WITH LIGHT EMITTING FROM THE END OF THE CABLE CAN CAUSE INJURY TO YOUR EYE.

To connect optical network cables (SONET/SDH OC-3/12/48, STM-1/4/16 or Gigabit Ethernet) to the EdgeFLEX 600, perform the following steps:

1. At the front of the chassis, locate the fiber optic cable(s) to install.
2. Remove the dust plugs from SFP optics module, and set aside for safe keeping. Whenever fiber optic cables will be removed from the SFP module for more than a short time, the dust plugs should be re-inserted into the SFP to keep the optics clean and free from dust.

Similarly, if there are dust plugs on the duplex cable connector of the fiber optic cable, remove and store these for future use.

3. Insert the LC duplex cable connector into the appropriate optical interface connector on the card. Note that fiber orientation of the transceiver is Transmit on the left, Receive on the right.





## Powering Up and Checking LEDs

### Powering Up the Chassis

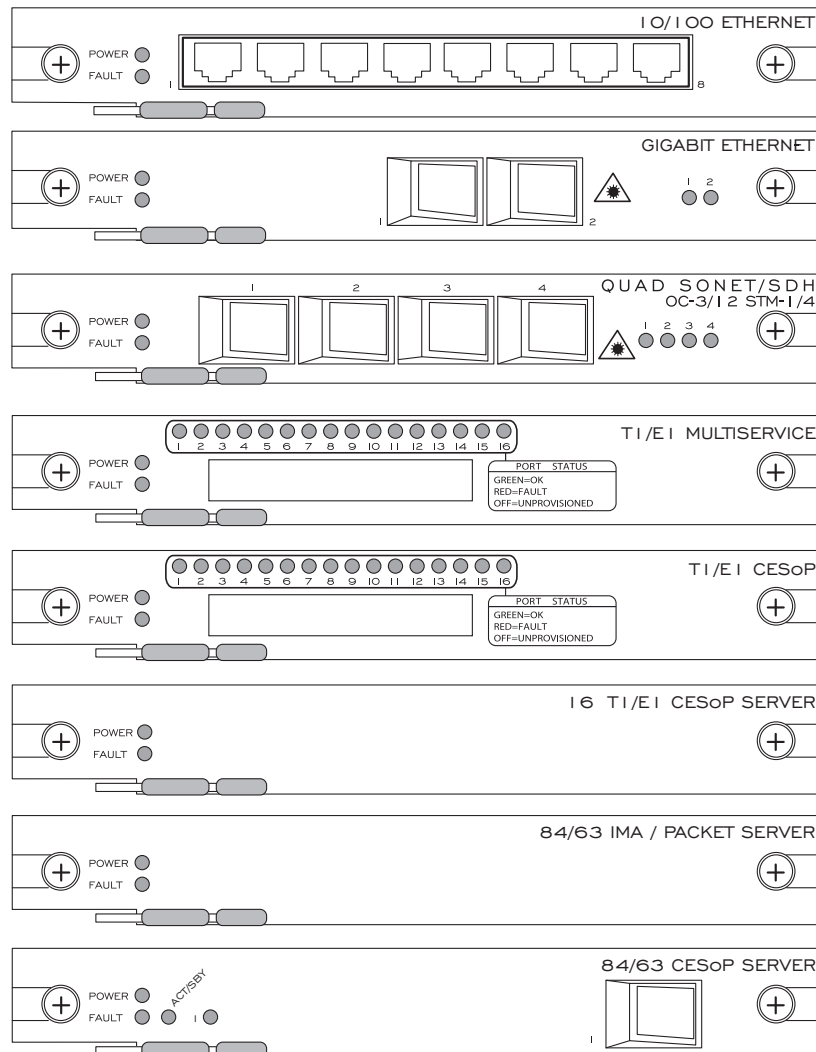
After you install the power cables, system cables, and network cables, you are ready to power up the EdgeFLEX 600. To power up the chassis, perform the following steps:

1. Ensure that the ground cable and all the power cables are installed and secure.
2. Apply DC power from the power source, as appropriate.
3. Turn the circuit breaker switch to ON.

Turning on the circuit breakers applies power to all the components in the chassis. The system powers up and the LEDs on the power supply and Management Card provide the operational status.

### Card LED Locations

The following illustration shows the LED locations for various I/O modules that may populate a EdgeFLEX 600 chassis.



## Checking System Status LEDs

The EdgeFLEX 600 system status LEDs are located on the SCPX card, the Power Supply Units, and the Management Card. The following table lists the normal state and alarm state of these LEDs. Refer to the illustration in *Card LED Locations*, on page 2-15 for the location of the LEDs.

Card/Location	LED Label	Normal State / Meaning	Alarm State / Meaning
<b>Management Card</b>	MIN (Minor)	Off	On (Amber)
	MAJ (Major)	Off	On (Red)
	CRI (Critical)	Off	On (Red)
	OMT 1, 2	On (Green) - valid GBIC module is installed & recognized	On (Amber) - the GBIC module cannot be recognized by the EdgeFLEX 600.
		Off - no GBIC installed	
ACO	Off	On (Amber) - When ACO has been pressed but Alarms are still present.	
<b>SCPX</b>	Power	On (Green)	Off
	Active/Standby	On (Green) - SCPX is Active system controller	On (Amber) - SCPX is in Standby mode
	Fault	Off	On (Red)
	Alarm		
<b>PSU</b>	OK	On (Green)	Red (PSU not switched on or no DC supply connected)
<b>PSU - Fan Fault</b>	CTRL	On (Green) - The fan controller circuitry on the PSU is operating properly.	On (Red) - the fan controller on the PSU is experiencing a fault.
	MAIN	On (Green)	On (Red) - Main Fan Tray has failed or is not present.
	AUX	On (Green)	On (Red) - Auxiliary Fan Tray has failed or is not present.

## Check Management Port (Ethernet) LEDs

There are two RJ-45 ports for Ethernet management of the EdgeFLEX 600 located on the Management card. Refer to the illustration in *Card LED Locations*, on page 2-15 for the location of the LEDs.

Each Ethernet management port has two status LEDs; LINK/ACT and SPEED. The LINK/ACT LED is on the right and indicates the presence of an Ethernet link and/or traffic activity on that link. The LINK SPEED LED is on the left of the port and indicates the speed of the Ethernet link, either 10Mbps or 100Mbps. The following table lists the interpretation of the states of the two LEDs.

LED	Meaning
Link / Activity (right LED)	On (Green) to indicate Link
	Blinking (Green) to indicate Activity
	Off to indicate No Link Detected
Speed (left LED)	Green - 100 Mbps
	Amber - 10 Mbps

## Check I/O Card LEDs

The I/O cards contain LEDs that represent card and/or port status, depending on the cards installed in the EdgeFLEX 600. Refer to the illustration in *Card LED Locations*, on page 2-15 for the location of the LEDs. The following table shows the states and interpretation of the LEDs.

Card Type	LED Label	Description	Normal State	Alarm State
Any	Power	Card has powered up	Green	On (Red), or Off
	Fault	Card is experiencing a fault condition	Off	On (Red)
	Active (Act)	Card is Active member of a redundant pair		
	Standby (Sby)	Card is Standby member of redundant pair		
Quad Gigabit Ethernet SCPX	1 - 4	Ports 1 - 4	Green (Link), Blinking (Activity)	On (Amber), or Off
Dual Gigabit Ethernet	1 - 2	Ports 1 and 2	Green (Link), Blinking (Activity)	On (Amber), or Off
Octal Fast Ethernet	(left LED)	Speed	Green = 100 Mbps Off = 10 Mbps	On (Red), or Off
	(right LED)	LINK	<ul style="list-style-type: none"> <li>• Green = Link without Activity</li> <li>• Blinking = Link with Activity</li> </ul>	On (Red)
Quad SONET/SDH or 84/63 CESoP Server OC-3/OC-12 STM-1/STM-4	1 - 4	Ports 1 - 4	Green (Link)	Amber (LOS), or Off
Quad SONET/SDH SCPX OC-12/48 STM-4/STM-16	1 - 4	Ports 1 - 4	Green (Link)	Amber (LOS), or Off
16 port T1/E1 (all varieties)	1 - 16	Ports 1 - 16	Green (OK)	Red (Fault), or Off (unprovisioned)

## **Routing Cables**

### **Routing System and Network Cables**

The EdgeFLEX 600 accessory kit includes a cable management bracket that you can use to position the system and network cables around the chassis.

If you installed the optional cable management bracket (see *Rack Installation*, on page 2-6), use the following guidelines to route the cables:

- Route the power cables from the PSU units to the left side and secure using a tie-wrap.
- Route all management cables through the cable management bracket on the left front of the chassis and secure them using a tie-wrap.
- Route all network cables through the cable management bracket and secure them using a tie-wrap.

---

**CAUTION!** FIBER-OPTIC CABLES ARE DELICATE AND CARE MUST BE EXERCISED WHEN DRESSING CABLES TO AVOID DAMAGE TO THE CABLE. BE SURE NOT TO BEND THE CABLES TOO TIGHTLY; FIBER OPTIC CABLES TYPICALLY HAVE A MINIMUM BEND RADIUS OF 1.2 INCHES (30.5 MM) WHICH MUST BE OBSERVED. REFER TO THE MANUFACTURER'S SPECIFICATIONS FOR THE SPECIFIC CABLES BEING INSTALLED.

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# CHAPTER 3

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## *Adding and Replacing Components*

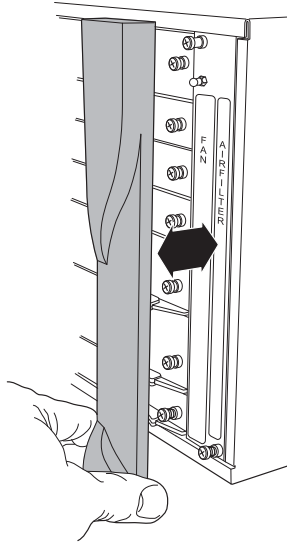
### **In this Chapter**

- Replacing the Air Filter
- Replacing a Fan Tray
- Replacing an SFP Module
- Removing/Installing Cards
- Nonreplaceable Components

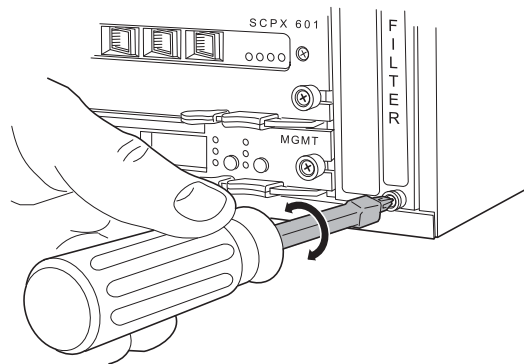
## **Replacing the Air Filter**

The air filter should be replaced or cleaned on a regular basis. This may be done while the unit is operating. To replace the air filter, perform the following steps:

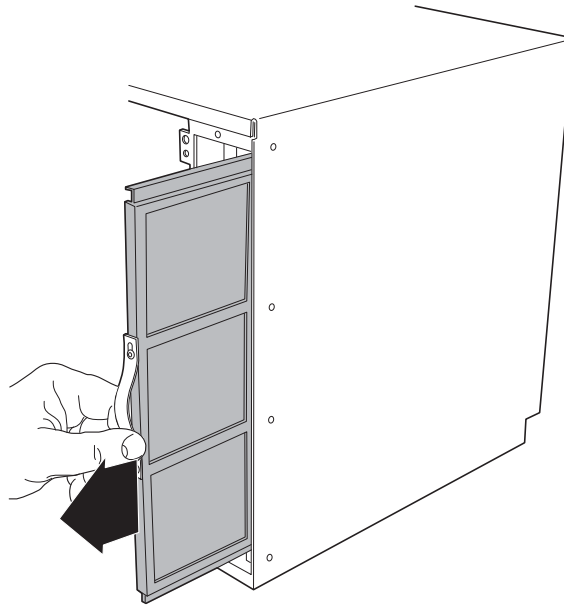
1. Remove the front bezel that covers the fan tray and air filter.



2. With a #2 Phillips screwdriver, unscrew the captive thumbscrews at the top and bottom of the fan tray and air filter cover by turning it counterclockwise until the filter cover is free from the chassis. Place the cover to one side.



3. The air filter is located to the right of the fan tray. Grasp the filter removal strap and carefully pull the air filter out of the chassis.



---

**NOTE:** If you have large fingers, it may be difficult to pop the removal strap up enough to grasp it. A small hook or tool may help.

---

4. Insert the new air filter into the chassis, reversing the procedure in Step 3.
5. Replace the fan tray/air filter cover removed in Step 2, and with a #2 Phillips screwdriver, secure the captive retaining screws at the top and bottom of the cover by turning them clockwise until tight.
6. Reinstall the front bezel.

## Replacing a Fan Tray

The EdgeFLEX 600 fan tray assembly is hot swappable, and can be replaced with power applied, though if the fan tray is removed, it should be replaced as quickly as possible to avoid overheating.

Note that older (pre Release 1.4.0) EdgeFLEX 600 platforms were equipped with two fan trays, and that they are NOT interchangeable with Release 1.4.0 or later hardware. Have the appropriate replacement fan tray unit on hand before beginning this procedure.

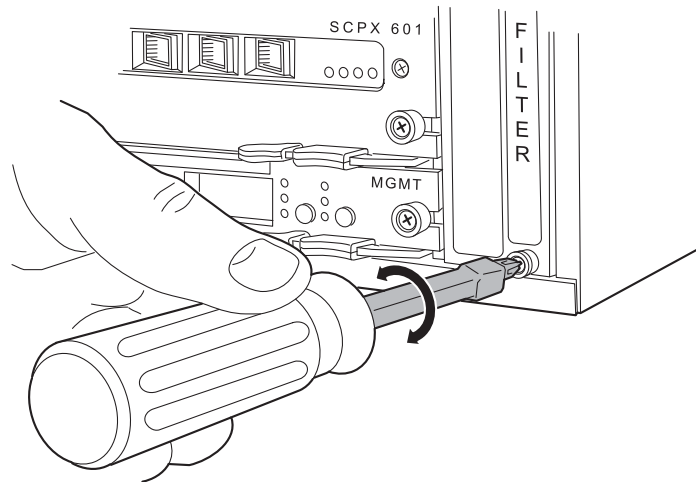
To replace a faulty fan tray, perform the following steps:

1. Remove the front bezel that covers the fan tray and air filter.

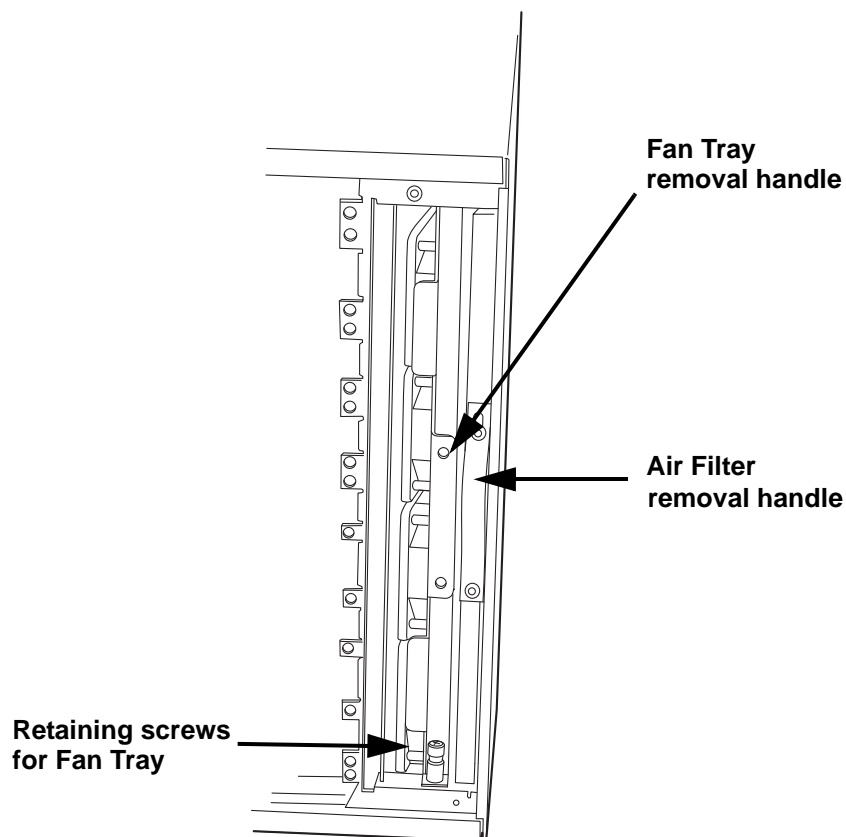
## Adding and Replacing Components

### Replacing a Fan Tray

2. With a #2 Phillips screwdriver, unscrew the captive thumbscrews at the top and bottom of the filter cover by turning them counterclockwise until the filter cover is free from the chassis. Place the filter cover to one side.

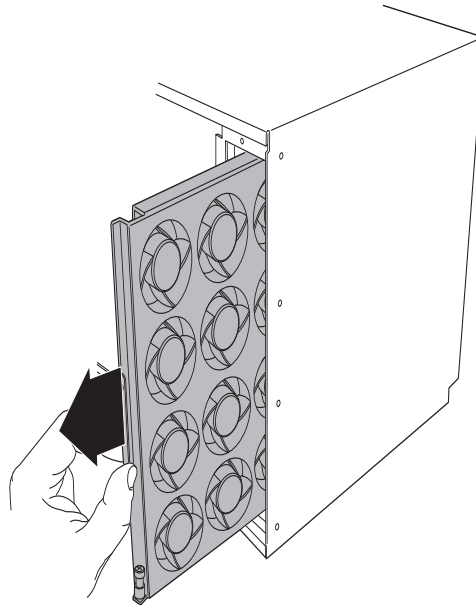


3. With the fan tray cover removed, the EdgeFLEX 600's fan tray will be visible, as shown in the figure below.





4. Unscrew the captive retaining screw at the bottom of the fan tray. Grasp the fan tray removal handle and pull the fan tray out of the chassis, as shown below.



5. Insert a replacement fan tray in the empty slot, aligning it with the internal guides in the chassis. Slide the fan tray assembly into the chassis completely, until it is fully seated, and the front of the handle is flush with the front of the chassis.
6. With a #2 Phillips screwdriver, screw the captive retaining screw by turning it clockwise until it is tight and the fan tray assembly is secure in the chassis.
7. Reinstall the fan tray cover, and tighten the retaining thumbscrews at the top and bottom of the cover.
8. Reinstall the decorative bezel.

## Replacing an SFP Module

The EdgeFLEX 600 optical interfaces are field-replaceable and hot swappable, and can be replaced with power applied. To replace a faulty SFP module, perform the following steps:

1. Remove any cabling from the SFP module.
2. Replace the SFP dust plugs to protect the optics. Likewise, replace the dust plugs on the duplex cable connector of the fiber optic cables if the cable will not be reinstalled immediately.

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**NOTE:** Depending on the type of SFP module, steps 2 and 3 may need to be reversed. The bail on some SFP modules cannot be moved with the dust plugs installed.

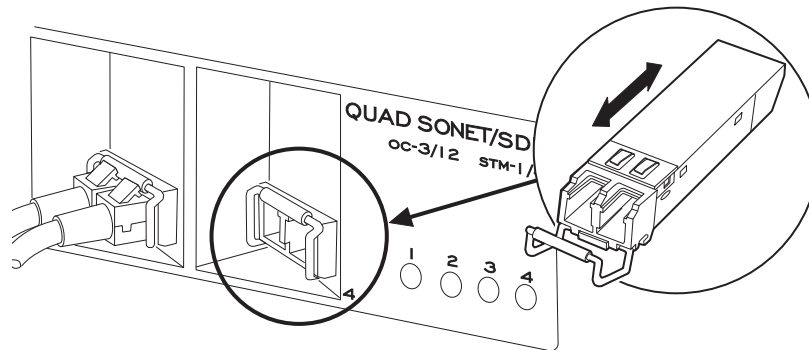
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## Adding and Replacing Components

### Removing/Installing Cards

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3. Flip down the extractor bail.



4. Grasp the extractor bail and gently but firmly pull to remove the SFP module.
5. Insert the replacement SFP module into the empty slot, and using the extractor bail, gently but firmly push until fully seated.

---

**NOTE:** Be sure to replace with the same type of SFP, unless there is no software configuration present for the port in question.

---

6. Flip the extractor bail to the upright position.
7. Remove the SFP dust plug from the SFP module, and if necessary, remove the dust plugs from the fiber optic cable's duplex connector.

---

**NOTE:** Depending on the type of SFP module, steps 5 and 6 may need to be reversed. The bail on some SFP modules cannot be moved with the dust plug installed.

---

8. Reconnect the optical cabling to the SFP.

## Removing/Installing Cards

The EdgeFLEX 600 cards (SCPX, service modules, Management card, and DC PSUs) are hot-swappable and may be removed or inserted while the unit is fully powered.

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**NOTE:** Blank faceplates covering empty positions in the EdgeFLEX 600 chassis do not have ejector latches, and may be removed simply by unscrewing their two captive thumbscrews.

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**CAUTION!** THE EDGEFLEX 600 IS DESIGNED TO BE OPERATED WITH EITHER A CARD OR BLANK FACEPLATE IN EVERY FRONT-PANEL POSITION. OPERATING THE EDGEFLEX 600 WITH UNCOVERED SLOTS WILL INTERFERE WITH THE AIRFLOW THROUGH THE CHASSIS AND IMPAIR SYSTEM COOLING.

---

**CAUTION!** REMOVING THE MANAGEMENT CARD WILL BREAK ANY OUT-OF-BAND MANAGEMENT CONNECTIVITY TO THE EDGEFLEX 600! IF MANAGEMENT CONNECTIVITY IS TO BE MAINTAINED, BE SURE THAT A FUNCTIONING IN-BAND MANAGEMENT CONNECTION IS ESTABLISHED AND OPERATIONAL *PRIOR* TO EXTRACTING THE MANAGEMENT CARD.

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**WARNING!** WHEN INSERTING OR EXTRACTING A EDGEFLEX 600 DC POWER SUPPLY UNIT, MAKE SURE THE PSU CIRCUIT BREAKER SWITCH IS IN THE OFF POSITION, AND THAT THE DC POWER CONNECTOR HAS BEEN UNPLUGGED PRIOR TO REMOVING OR INSERTING A PSU.

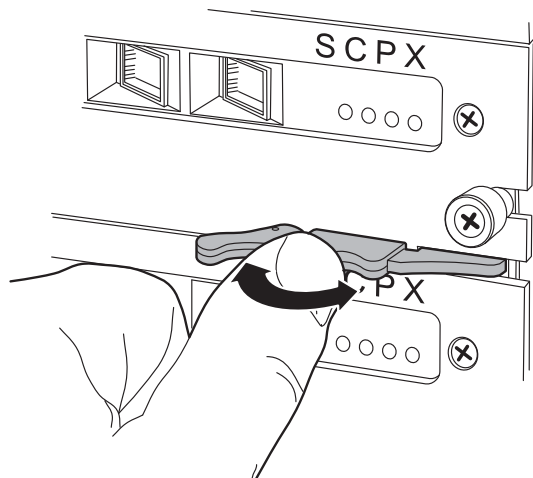
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**CAUTION!** WHEN INSERTING OR EXTRACTING POD CARDS, USE A SMOOTH, QUICK MOTION TO ENSURE CONNECTIONS FROM THE CARD TO THE BACKPLANE ARE MADE OR BROKEN SIMULTANEOUSLY.

---

### **Operating the Ejector Latches**

The EdgeFLEX 600 card ejector latches combine a lock with an ejector. To unlock and eject a card, slide the lock toward the end of the handle, and simultaneously pull the handle.



### **Card Removal/Insertion**

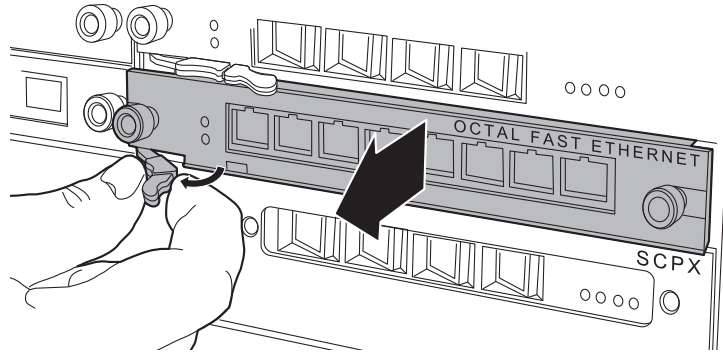
To remove and insert a card, perform the following steps:

1. With a #2 Phillips screwdriver, unscrew the captive thumbscrews at the right and left sides of the card until they are loose.

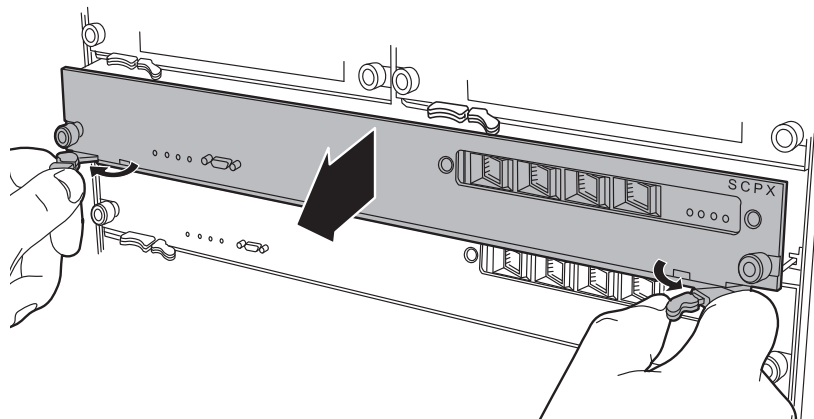
## Adding and Replacing Components

### Removing/Installing Cards

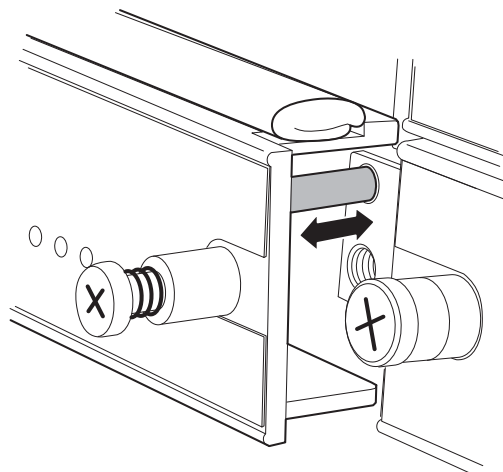
2. As shown in the following illustrations, grasp the ejector latch, slide the locking bar towards the end of the handle, then pull the ejector latch. This will force the card to disengage from the backplane and slide out of the chassis. Use a smooth, quick action to ensure all electrical contacts from the card to the backplane are broken at once.



**NOTE:** The SCPX cards and the Management card have ejectors at each end of the card. Be sure to operate both ejector handles simultaneously.



3. To install a card, align the card with the guides inside the chassis, and slide the card gently into the chassis. As the card approaches the chassis, be sure that the guide pins are aligned with the guide holes as shown in the illustration below.



4. At this point, be sure the ejector latch is perpendicular to the card (in the ejected position), then gently press the ejector latch toward the card. The ejector latch should engage with the chassis and draw the card into its fully-inserted position. Use a smooth, quick action to install the card so that electrical connections from the card to the backplane are made at once. When the card is fully inserted, the ejector latch will snap into its locked position.

If you feel more than a slight amount of resistance, STOP and recheck that the card is correctly aligned with the chassis guides.

5. After inserting the card fully, use a #2 Phillips screwdriver to tighten the captive thumbscrews at the right and left sides of the card by turning clockwise until secure.

## ***Nonreplaceable Components***

The fan tray assemblies, air filter, Management Card, SCPX cards, service cards, Power Supply Units, OMT modules and SFP modules are the only user-replaceable components of the EdgeFLEX 600 chassis.

If you suspect any other component of the EdgeFLEX 600 to be faulty, contact your Carrier Access representative.

## ***Adding and Replacing Components***

### *Nonreplaceable Components*

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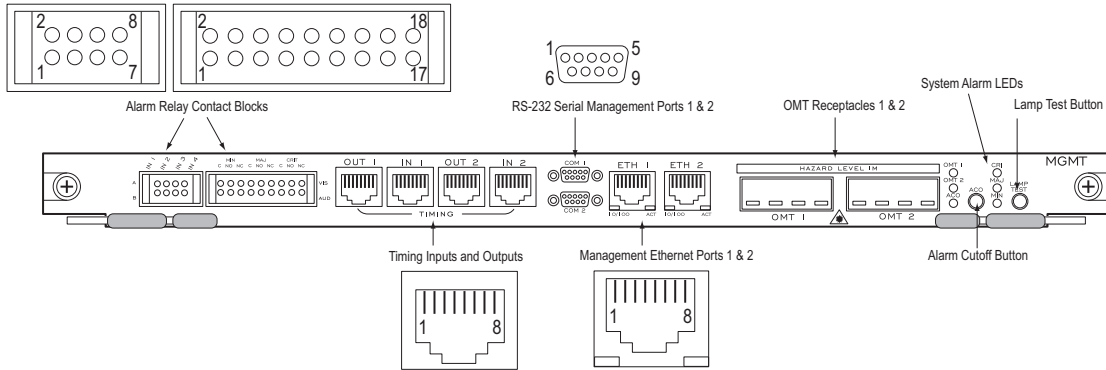
## ***Connector Pin Assignments***

### **In this Appendix**

- Pin Locations
- Ethernet (RJ-45) Pinout (management port)
- Serial Port Pinout
- Timing Port Pinout
- Alarm Inputs Pinout
- Alarm Outputs Pinout

## Pin Locations

The tables in this appendix list the connector pin assignments for the ports on the Management card. The following illustration provides pinout numbering arrangements for reference.



## Ethernet (RJ-45) Pinout (management port)

Pin	Signal
1	TD+ (Transmit to UTP)
2	TD- (Transmit to UTP)
3	RD+ (Receive from UTP)
4	Not used
5	Not used
6	RD- (Receive from UTP)
7	Not used
8	Not used



## **Serial Port Pinout**

<b>Pin</b>	<b>Signal</b>
1	Carrier Detect (not used)
2	Receive Data
3	Transmit Data
4	Data Terminal Ready
5	Ground
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator (not used)

## **Timing Port Pinout**

### **Timing In Ports**

The EdgeFLEX 600's two Timing In ports provide both timing input and output connections, as shown in the following table.

<b>Pin</b>	<b>Signal</b>
1	BITS_IN_RRING
2	BITS_IN_RTIP
3	Not used
4	BITS_OUT_TRING
5	BITS_OUT_TTIP
6	Not used
7	Not used
8	Not used

## Connector Pin Assignments

### Alarm Inputs Pinout

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#### Timing Out Ports

The EdgeFLEX 600's two Timing Out ports provide only timing output pins, as shown in the following table. When the EdgeFLEX 600 is powered, the timing output is synchronized to the input timing signal. When the EdgeFLEX 600 is not powered, the input timing signal is connected directly to the output pins as a pass through.

Pin	Signal
1	Not used
2	Not used
3	Not used
4	BITS_OUT_TRING
5	BITS_OUT_TTIP
6	Not used
7	Not used
8	Not used

#### Alarm Inputs Pinout

The alarm inputs are polarity insensitive; the A and B designations in the following table simply represent the labeling on the management card itself.

The circuitry associated with these pins will sense voltage and/or current changes on the two IN pins in a set (i.e., pins 1 and 2 represent Input 1). The Voltage Threshold is 5-75Vdc and maximum current is 0.5 Amps.

The inputs are current limited and will never present a load greater than 2 milliamps to the source. The platform is protected from excessive voltage at its input by a 0.5A non-user-serviceable fuse.

NO and NC status applies to a powered system only; when the system is powered down, NO becomes NC as a fail-safe mechanism.

Pin	Signal
1	Input 1 B
2	Input 1 A
3	Input 2 B
4	Input 2 A
5	Input 3 B
6	Input 3 A
7	Input 4 B
8	Input 4 A

## **Alarm Outputs Pinout**

<b>Pin</b>	<b>Signal</b>
1	Audible Minor Alarm Common
3	Audible Minor Alarm Normally Open
5	Audible Minor Alarm Normally Closed
7	Audible Major Alarm Common
9	Audible Major Alarm Normally Open
11	Audible Major Alarm Normally Closed
13	Audible Critical Alarm Common
15	Audible Critical Alarm Normally Open
17	Audible Critical Alarm Normally Closed
2	Visible Minor Alarm Common
4	Visible Minor Alarm Normally Open
6	Visible Minor Alarm Normally Closed
8	Visible Major Alarm Common
10	Visible Major Alarm Normally Open
12	Visible Major Alarm Normally Closed
14	Visible Critical Alarm Common
16	Visible Critical Alarm Normally Open
18	Visible Critical Alarm Normally Closed

---

**NOTE:** The pin number ordering is staggered to reflect the top row of pins, then the bottom row of pins.

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## **Connector Pin Assignments**

### *Alarm Outputs Pinout*

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